managed by NREL's Site Operations Center. NREL's activities produce about 235,910 cubic feet of solid waste annually. Solid waste is deposited in a local landfill through contracts with solid waste handling companies.

3.10.3 Recycled Materials

NREL's formal waste minimization program includes an active recycling program. The site currently collects oils (lubricants and antifreeze), fluorescent light bulbs, scrap metals (iron, copper, steel, stainless steel, and aluminum), cardboard, newspaper, office paper, books, glass and plastic containers, packing peanuts, tyvek, transparencies, toner cartridges, and batteries for recycling. NREL encourages employees to bring in recyclable materials from home and use the collection containers in selected NREL parking lots.

3.11 PUBLIC UTILITIES AND SERVICES

The following discussions address electricity, gas, telecommunications, water, sewage, police, fire and ambulance services and infrastructure. Stormwater drainage is addressed in Sections 3.6 and 4.6 Water Resources. Energy is discussed in Sections 3.12 and 4.12. Figure 1-3 presents the locations of on-site utility lines (electrical, gas-oil-steam, telecommunication-CATV, water, sewer and surface drainage).

3.11.1 Electricity and Gas

Electrical power for the NWTC is delivered through Xcel Energy power lines along Highway 93 and on-site. Overhead lines enter the NWTC property from the west along a 20-foot wide easement. The 13.2 kV power lines transition from overhead to underground at the NWTC west property line. From that point, all electric lines on the NWTC property are buried underground. The 13.2 kV power lines feed the Switchgear building (Bldg. 253), which feeds a split bus with two main circuit breakers. One bus feeds the site buildings, and the other feeds the turbine 13.2 kV distribution system to the test sites.

The turbine distribution is connected in a parallel configuration with Xcel Energy, thus allowing the NWTC to feed up to 10 MVA into Xcel Energy's grid with power generated during wind turbine research activities. There is no agreement for the NWTC to sell power into the energy grid.

Power demand ranges from a low of approximately 521 kilowatts to 933 kilowatts. Monthly energy consumption ranges from approximately 141,000 to 413,000 kilowatt-hours. Annual consumption is approximately 3 million kilowatt-hours.

Natural gas is not provided to the site. The nearest gas line is a four-inch line located along the east side of Highway 93. This line terminates at a location just south of the Boulder/Jefferson County line (see Figure 3-5, photograph 21).

3.11.2 Telecommunications

The NWTC is served with 15 phone lines coming directly from Qwest and two T1 high- speed lines coming from NREL's South Table Mountain Site. The NWTC has 41 lines to service 41 incoming and outgoing calls concurrently. These connections are provided to the site via overhead powerline structures that drop below ground at the site boundary.

3.11.3 Water

The domestic water system consists of an underground 15,000-gallon tank, a transfer pump, a 2,000-gallon day tank, chlorine injection system, pressurizing pumps and an underground pipeline system to Buildings 251 and 254. The system has two pressurizing pumps. One is designed to be a backup if the primary pump can't keep the system pressurized. Currently, approximately one 3,500-gallon truck delivery is made every week to replenish domestic water supplies. No off-site domestic water lines serve the site or adjacent properties.

Low water use fixtures are being installed as funding becomes available throughout the NWTC as part of a comprehensive effort to reduce NWTC water consumption. Solar hot water heating may be included in future improvements.

3.11.4 Sewage

The sewage system at the NWTC consists of two separate septic tanks and leach fields at Buildings 251 and 254. The septic tanks are pumped once a year. Future buildings requiring domestic water would also require additional septic tank and leach fields. The size of each septic tank and leach field is based on maximum staffing and soil conditions at each facility.

3.11.5 Emergency Response and Fire Protection

In the event of a crime or other requirement for assistance on the project site, on-site security personnel would respond. If off-site support is required, the Jefferson County Sheriff would be contacted.

The on-site fire protection system consists of three 25,000-gallon insulated tanks, a 1000-gallon per minute pump, a small pressurizing jockey pump, an emergency diesel generator, underground distribution pipeline, and fire hydrants. The underground pipeline extends around all buildings in a loop and fire hydrants are spaced along the main NWTC road. Currently, only Buildings 251 and 254 have fire sprinkler protection. Buildings 251, 252, 253, 254, 255, 256, 257 and the Hybrid Building have fire detection. The current design is to provide a two-hour supply of fire protection water for a building fire. It is not likely that multiple building fires would occur simultaneously. Therefore, the existing fire protection system is considered adequate.

To protect the site from wildfire, NREL applies its Fire Protection Program to the site. NREL and the Colorado State Forest Service conduct periodic wildfire assessments to assess the hazards from wildfires and to determine if appropriate controls have been established to control these hazards. The NREL Fire Protection Program is available on the NREL website under ES&H Programs. The Colorado State Forest Service completed a wildfire hazard assessment of the NWTC in September of 2001. Their letter dated September 5, 2001 states that NREL's Wildfire Hazard Assessment, dated July 20, 2001, is technically sound and up to date.

In the event of a fire on the project site or adjacent lands, the Cherryvale Fire Protection District is under contract to provide emergency service equipment and personnel.

Ambulance service is provided by the Cherryvale Fire Protection District. In the event of an on-site injury, illness or other situation requiring an ambulance, District personnel and equipment would be dispatched to the site.